

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A tool management method executed by a tool server apparatus coupled with a remote client system via a first network and coupled with a plurality of tools via a second network, each of the plurality of tools being physical tools used in a factory for transporting or processing semiconductor wafers, comprising:

receiving a first request from the remote client system via the first network, the first request containing a uniform resource locator path including a function field and an object field, the object field and the function field identifying a tool object model for an identified tool, the tool object model providing a logical description for use in an automatic control environment of the factory and associated with the plurality of tools;

determining a function to be performed on the tool identified in said object field in said uniform resource locator path based on said function field in said uniform resource locator path;

in response to said first request, sending a first message to the tool identified in the object field in the uniform resource locator path via the second network, said first message is operable for initiating processing on the tool identified in the object field in the uniform resource locator path;

awaiting an initiate processing acknowledge from the tool;

upon receipt of said initiate processing acknowledge from the tool, awaiting an event report from the tool indicating completion of the action;

upon receipt of the event report, sending a message to the tool acknowledging the receipt of the event report; and

wherein the logical description provided by the tool object model enables the initiation of the processing and determination of physical parameters of the identified tool to determine when to initiate the processing.

2-3. (cancelled)

4. (previously presented) The method of claim 1 further comprising:
receiving a second message from said one of said plurality of tools associated with said action; and
caching said second message.
5. (previously presented) The method of claim 4 further comprising:
receiving a second request from the remote client system via the first network;
retrieving said second message; and
generating a response to said second request using said second message.
6. (previously presented) The method of claim 5 further comprising:
sending said response to the remote client system.
7. (cancelled.)
8. (previously presented) The method of claim 1 further comprising:
receiving a connection request from the remote client system; and
opening a connection to the remote client system, said connection being operable for communicating requests and responses to said requests.
9. (previously presented) The method of claim 1 further comprising:
receiving a second request from the remote client system via the first network, said second request selected from the group consisting of information requests, expand requests and edit requests, wherein,
in response to said information requests, an HTML page is generated using a set of selected data for a tool object corresponding to a managed tool for sending to the remote client system,

in response to said edit request, an HTML page is generated having a portion operable for user entry of one or more values for modifying a tool object attribute for sending to the remote client system, and

in response to said expand requests and HTML page is generated using a set of child object names and relations to a parent object identified in said expand request for sending to the remote client system.

10. (previously presented) The method of claim 1 wherein said function field comprises an execute request.

11. (previously presented) The method of claim 1 wherein the sending of said first message is in response to execution of a tool object method identified in said first request.

12. (previously presented) The method of claim 11 further comprising overriding said tool object method.

13. (previously presented) The method of claim 12 wherein said overriding said tool object method comprises:

parsing a script source;

determining if said script source includes a method signature matching a method signature of said tool object method; and

if so, executing a corresponding portion of said script source.

14. (previously presented) The method of claim 1 wherein said first request is received in accordance with the hypertext transfer protocol.

15. (previously presented) A data processing system comprising:

circuitry on a tool server, coupled with a remote client system via a first network and coupled with a plurality of tools via a second network, each of the plurality of tools being physical tools used in a factory for transporting or processing semiconductor wafers, configured

to receive a first request from the remote client system via the first network, the first request containing a uniform resource locator path including a function field and an object field;

the object field and the function field identifying a tool object model for an identified tool, the tool object model providing a logical description for use in an automatic control environment of the factory and associated with the plurality of tools;

said circuitry configured to determine a function to be performed on the tool identified in said object field in said uniform resource locator path based on said function field contained in said uniform resource locator path; and

said circuitry configured to send a first message to said tool identified in said object field in said uniform resource locator path via the second network in response to said first request, wherein said first message is operable for initiating processing on said tool identified in said object field in said uniform resource locator path;

said circuitry configured to await an initiate processing acknowledge from the tool; and

said circuitry configured to await an event report from the tool indicating completion of the action upon receipt of said initiate processing acknowledge from the tool;

upon receipt of the event report, said circuitry configured to send a message to the tool acknowledging the receipt of the event report;

wherein the logical description provided by the tool object model enables the initiation of the processing and determination of physical parameters of the identified tool to determine when to initiate the processing.

16-17. (cancelled.)

18. (previously presented) The data processing system of claim 15 further comprising:
circuitry configured to receive a second message from said tool identified in said object field of said uniform resource locator path; and
circuitry configured to cache said second message.

19. (previously presented) The data processing system of claim 18 further comprising:
circuitry operable for receiving a second request from the remote client system via the

first network;

 circuitry operable for retrieving said second message; and
 circuitry operable for generating a response to said second request using said second message.

20. (previously presented) The data processing system of claim 19 further comprising:
 circuitry operable for sending said response to the remote client system.

21. (previously presented) The data processing system of claim 15 further comprising:
 circuitry operable for receiving a connection request from the remote client system; and
 circuitry operable for opening a connection to the remote client system, said connection being operable for communicating requests and responses to said remote client system.

22. (previously presented) The data processing system of claim 15 further comprising:
 circuitry operable for receiving a second request from the remote client system via the first network, said second request selected from the group consisting of information requests, expand requests and edit requests, wherein,

 in response to said information requests, an HTML page is generated using a set of selected data for a tool object corresponding to a managed tool for sending to the remote client system,

 in response to said edit requests, an HTML page is generated having a portion operable for user entry of one or more values for modifying a tool object attribute for sending to the remote client system, and

 in response to said expand requests an HTML page is generated using a set of child object names and relations to a parent object identified in said expand request for sending the remote client system.

23. (previously presented) The data system of claim 15 wherein said object field in said first request comprises an execute request.

24. (previously presented) The data processing system of claim 15 wherein the sending of said first message is in response to execution of a tool object method identified in said first request.

25. (original) The data processing system of claim 24 further comprising circuitry operable for overriding said tool object method.

26. (original) The data processing system of claim 25 wherein said circuitry operable for overriding said tool object method comprises:

- circuitry operable for parsing a script source;
- circuitry operable for determining if said script source includes a method signature matching a method signature of said tool object method; and
- circuitry operable for executing a corresponding portion of said script source, if so.

27-38. (cancelled)

39. (previously presented) The method of claim 1 further comprising:
receiving a second request from the remote client system via the first network; and
generating an HTML page using a set of selected data for a tool object corresponding to a managed tool for sending to the remote client system in response to said second request.

40. (previously presented) The method of claim 39 wherein said HTML page has a portion for user entry of one or more values for modifying a tool object attribute.

41. (previously presented) The data processing system of claim 15 further comprising:
circuitry operable for receiving a second request from the remote client system via the first network; and
circuitry operable for generating an HTML page using a set of selected data for a tool object corresponding to a managed tool for sending to the remote client system in response to said second request.

42. (previously presented) The data processing system of claim 41 wherein said HTML page has a portion operable for user entry of one or more values for modifying a tool object attribute.

43-44. (cancelled)

45. (previously presented) The data processing system of claim 15 wherein said first request is received in accordance with the hypertext transfer protocol.

46. (cancelled)

47. (previously presented) The method of claim 1 wherein said first network and said second network utilize the same local area network.

48. (previously presented) The data processing system of claim 15 wherein said first network and said second network utilize the same local area network.

49. (previously presented) The method of claim 1, further comprising performing an override process for objects of the tool object model.

50. (previously presented) The method of claim 49, wherein the override process comprises the following:

 parsing a script override attribute of a given object of the tool object model, the script override attribute containing a script source;

 determining if the script source contains a method having a matching signature as a default method associated with the object; and

 if a matching signature is found, then indicating that the default method has been overridden in an override registry list.

51. (previously presented) The method of claim 50, wherein the signature is selected from the group consisting of a name, a return type, and a set of arguments.

52. (previously presented) The data processing system of claim 15, wherein said circuitry is configured to perform an override process for objects of the tool object model.

53. (previously presented) The data processing system of claim 52, wherein the override process comprises the following:

parsing a script override attribute of a given object of the tool object model, the script override attribute containing a script source;

determining if the script source contains a method having a matching signature as a default method associated with the object; and

if a matching signature is found, then indicating that the default method has been overridden in an override registry list.

54. (previously presented) The data processing system of claim 53, wherein the signature is selected from the group consisting of a name, a return type, and a set of arguments.

55. (previously presented) The method of claim 1, further comprising,
in response to said first request, invoking a remote processing control method, the remote processing control method performing the method operations of sending the first message to the tool, awaiting the initiate processing acknowledge, and awaiting the event report.

56. (previously presented) The data processing system of claim 15, wherein said circuitry is configured to respond to said first request by invoking a remote processing control method, the remote processing control method performing the operations of sending the first message to the tool, awaiting the initiate processing acknowledge, and awaiting the event report.

57. (previously presented) A tool management method executed by a tool server apparatus

coupled with a remote client system via a first network and coupled with a plurality of tools via a second network, each of the plurality of tools being physical tools used in a factory for transporting or processing semiconductor wafers, comprising:

receiving a first request from the remote client system via the first network, the first request containing a uniform resource locator path including a function field and an object field, the object field and the function field identifying a tool object model for an identified tool, the tool object model providing a logical description for use in an automatic control environment of the factory and associated with the plurality of tools;

determining a function to be performed on the tool identified in said object field in said uniform resource locator path based on said function field in said uniform resource locator path;

in response to said first request, invoking a remote processing control method, the remote processing control method sending a first message to the tool identified in the object field in the uniform resource locator path via the second network, said first message is operable for initiating processing on the tool identified in the object field in the uniform resource locator path;

the remote processing control method awaiting an initiate processing acknowledge from the tool;

upon receipt of said initiate processing acknowledge from the tool, the remote processing control method awaiting an event report from the tool indicating completion of the action;

upon receipt of the event report, sending a message to the tool acknowledging the receipt of the event report; and

wherein the logical description provided by the tool object model enables the initiation of the processing and determination of physical parameters of the identified tool to determine when to initiate the processing;

performing an override process for objects of the tool object model, the override process including: parsing a script override attribute of a given object of the tool object model, the script override attribute containing a script source, determining if the script source contains a method having a matching signature as a default method associated with the object, and if a matching signature is found, then indicating that the default method has been overridden in an override registry list.